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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,505	04/19/2004	Toru Nakao	Q80667	1939
23373 7590 12/28/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER RENNER, CRAIG A	
			ART UNIT 2627	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/826,505

Applicant(s)

NAKAO ET AL.

Examiner

Craig A. Renner

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 24-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 October 2007 has been entered.

Drawings

2. At least because applicant did not request entry of the after-final amendment dated 12 September 2007, the drawings are again objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "the edge of said servo signal recording head and the outer edge of said guide block being chamfered," as set forth in lines 10-11 in each of claims 1 and 2, and "each edge of said servo signal recording head and the outer edge of each said guide block being chamfered," as set forth in lines 12-13 of claim 3, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) and/or an amendment to the claim(s) in compliance with 37 CFR 1.121(c) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:
 - a. In line 12 of claim 3, "the each" should be changed to --each-- for better clarity.
 - b. In line 2 in each of claims 10-12, "Al₂O₃" should be changed to -- Al₂O₃-- in order to improve clarity.

c. In line 1 in each of claims 27-29, "magnetic head assembly" should be changed to --servo signal writer-- in order to more clearly refer back to that set forth in independent claim 26.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-22, 24-25, and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In lines 5-6 of claim 1, and line 2 in each of claims 19-21, it is indefinite as to which of the "magnetic tapes," set forth in line 3 of independent claim 1, each instance of "the magnetic tape" refers.

b. In lines 7-8 and 9 of claim 1, and line 6 of claim 16, it is indefinite as to which of the "magnetic tapes," set forth in line 3 of independent claim 1, each instance of "said magnetic tape" refers.

c. In lines 5-6 of claim 2, it is indefinite as to which of the "magnetic tapes," set forth in line 3 of claim 2, "the magnetic tape" refers.

d. In lines 7-8 and 9 of claim 2, and line 6 of claim 17, it is indefinite as to which of the "magnetic tapes," set forth in line 3 of independent claim 2, each instance of "said magnetic tape" refers.

e. In lines 5-6 of claim 3, it is indefinite as to which of the "magnetic tapes," set forth in line 3 of claim 3, "the magnetic tape" refers.

f. In lines 8, 9, and 11 of claim 3, and line 6 of claim 18, it is indefinite as to which of the "magnetic tapes," set forth in line 3 of independent claim 3, each instance of "said magnetic tape" refers.

g. In line 3 of claim 18, "said plane surface" is indefinite because it lacks clear and/or positive antecedent basis.

h. In line 2 in each of claims 21 and 29, "the guiding block" is indefinite because it lacks clear and/or positive antecedent basis.

i. Claim 25 is indefinite because it depends on itself, i.e., "according to Claim 25" in line 1. As a result, many elements in this claim are indefinite because they lack clear and/or positive antecedent basis including "the inner wall" (line 1) and "the servo signal recording head" (line 2).

j. Claims 4-15, 22, and 24 inherit the indefiniteness associated with their respective base claims and stand rejected as well.

Claim Rejections - 35 USC § 102

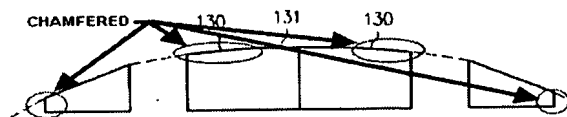
6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6, 13-15, 19-22, 24, and 26-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Biskeborn et al. (US 5,905,613).

With respect to claims 1-6, 13-15, 19-22, and 24, Biskeborn et al. (US 5,905,613) teaches a magnetic head assembly (FIG. 14, for instance) comprising a recording head (includes 131, for instance) wherein a sliding surface (131) of the recording head has a magnetic gap (between each 130) embedded thereon, two guide blocks (unlabeled elements to the left and right of the head) of which one guide block is set adjacent to a position of up-stream of a line of magnetic tape passing the recording head (as shown in FIG. 14, for instance), the other guide block is set adjacent to a position of down-stream of a line of magnetic tape passing the recording head (as shown in FIG. 14, for instance) and both guide blocks are slightly set back from the sliding surface of the recording head (as shown in FIG. 14, for instance), each edge of the recording head and the outer edge of each guide block being chamfered (as shown in FIG. 14, for instance) [as per claims 1-3, 13-15 and 19-21];



wherein a wrap angle between the sliding surface of the recording head and a plane surface formed by each edge of the recording head and the outer edge of each guide block is in a range of 1.0 to 6.0 degrees (line 6 in column 7, for instance) [as per claims 4-6]; wherein the recording head includes a planar surface (131) as the sliding surface (as shown in FIG. 14, for instance) and wherein the guide block is displaced from the planar surface (as shown in FIG. 14, for instance), the guide block having a guide block planar surface (i.e., the lower-most surface of the guide block, for instance) substantially parallel to the planar sliding surface (as shown in FIG. 14, for instance) [as per claim 22]; and wherein the guide block is comprised of an inner wall, which is a wall that closest to the recording head, and an outer wall, which is the wall that is farthest away from the recording head (as shown in FIG. 14, for instance), wherein the outer edge is formed on the edge of the outer wall (as shown in FIG. 14, for instance) [as per claim 24]. With respect to the intended use limitations appearing throughout the claims, note that a recitation with respect to the manner in which a claimed apparatus (i.e., a "magnetic head assembly") is intended to be employed (i.e., "to record servo signals, that serves for positioning of data recording magnetic heads and data reproducing magnetic heads, on magnetic tapes," "to record said servo signals onto the magnetic tape", and "so that said magnetic tape slides on each edge of said servo signal recording head and on an outer edge of each said guide block," "wherein the magnetic tape comes into contact with only the outer edge of the guide block," "slides on the sliding surface of the recording head," and "is not parallel to a surface of the guiding block," for instance) does not differentiate the claimed apparatus from a prior art

apparatus satisfying the claimed structural limitations, *Ex parte Masham*, 2 USPQ2d 1647 (PTO BPAI 1987). As the claims are directed to a "magnetic head assembly", per se, the method limitation(s) appearing in lines 2-3 in each of claims 13-15 can only be accorded weight to the extent that it/they affect the structure of the completed magnetic head assembly. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "surface-finished for hardening", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process", *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "surface-finished for hardening", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations", *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976).

With respect to claims 26-29, Biskeborn et al. (US 5,905,613) teaches a servo signal writer comprising a magnetic tape (122, for instance); a magnetic tape driving assembly (line 35 in column 7, for instance), a controller (line 41 in column 7, for instance) which controls the tape driving assembly, and a magnetic head assembly (FIG. 14, for instance) comprising a servo signal recording head (includes 131, for instance, i.e., a head capable of servo signal recording) wherein a sliding surface (131) of the servo signal recording head has a magnetic gap (between each 130) embedded thereon in order to record the servo signals onto the magnetic tape, and a guide block

(one of the unlabeled elements to the left and right of the head) which is set adjacent to a position of up-stream of a line of the magnetic tape passing the servo signal recording head (as shown in FIG. 14, for instance) and is slightly set back from the sliding surface of the servo signal recording head (as shown in FIG. 14, for instance) so that the magnetic tape slides on an edge of the servo signal recording head and on an outer edge of the guide block (as shown in FIG. 14, for instance) [as per claim 26]; wherein the magnetic tape comes into contact with only the outer edge of the guide block (as shown in FIG. 14, for instance) [as per claim 27]; wherein the magnetic tape slides on the sliding surface of the servo signal recording head (as shown in FIG. 14, for instance) [as per claim 28]; and wherein the magnetic tape is not parallel to a surface (i.e., left-most surface, for instance) of the guiding block (as shown in FIG. 14, for instance) [as per claim 29].

8. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Bischoff et al. (US 5,237,476).

Bischoff et al. (US 5,237,476) teaches a magnetic head assembly (FIG. 3, for instance) wherein an inner wall (on 18, for instance) directly abuts a servo signal recording head (12, for instance).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7-12 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biskeborn et al. (US 5,905,613).

Biskeborn et al. (US 5,905,613) teaches the magnetic head assembly as detailed in paragraph 7, supra. Biskeborn et al. (US 5,905,613), however, remains silent as to the guide block material being "Al₂O₃-TiC" as per claims 10-12, "which has hardness of more than 1200 Vickers hardness" as per claims 7-9, and the magnetic head assembly being used in combination with a "tape guide" to form "another wrap angle" from "0.5 to 2.0 degrees" as per claims 16-18.

Official notice is taken of the fact that Al₂O₃-TiC which has hardness of more than 1200 Vickers hardness is a notoriously old and well know guide block material. Official notice is also taken of the fact that it is notoriously old and well known in the art to use a magnetic head assembly in combination with a tape guide to form another wrap angle in the same field of endeavor in order to maintain guiding stability. Official notice is further taken of the fact that it is notoriously old and well known in the magnetic tape drive art to modify the parameters of magnetic tape drive components during the course of routine optimization/experimentation. It would have been obvious to a person having ordinary

skill in the art at the time the invention was made to have had the guide block material of Biskeborn et al. (US 5,905,613) be $\text{Al}_2\text{O}_3\text{-TiC}$ which has hardness of more than 1200 Vickers hardness, and to have had the magnetic head assembly of Biskeborn et al. (US 5,905,613) be used in combination with a tape guide to form another wrap angle from 0.5 to 2.0 degrees. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the guide block material of Biskeborn et al. (US 5,905,613) be $\text{Al}_2\text{O}_3\text{-TiC}$ which has hardness of more than 1200 Vickers hardness since such is a notoriously old and well know guide block material, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

One of ordinary skill in the art would have been motivated to have had the magnetic head assembly of Biskeborn et al. (US 5,905,613) be used in combination with a tape guide to form another wrap angle since such maintains guiding stability.

One of ordinary skill in the art would have been motivated to have had the another wrap angle be from 0.5 to 2.0 degrees since such a range, absent any criticality (i.e., unobvious and/or unexpected result(s)), is generally achievable through routine optimization/experimentation, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (CCPA 1955). Moreover, in the absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameter set forth above would have been obvious to a person having ordinary skill in the art at

the time the invention was made, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Response to Arguments

11. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

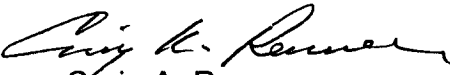
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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Craig A. Renner
Primary Examiner
Art Unit 2627

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